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MACLURA AURANTIACA, NUTTALL.

By Alexander King, G. P.

From an Inaugural Essay.

The proximate analysis of the bark of the root of this tree was undertaken in the hope of proving therein the existence of the coloring matters known as morin and morotannin. These acids were obtained by R. Wagner from the wood of *Morus tinctoria*, or fustic, and to them is due the value of this wood as a dye-stuff. Fustic has no use whatever in medicine, but is very largely consumed in the arts for dyeing yellow, and for this purpose alone large quantities are imported from the West Indies and South America. The *Maclura aurantiaca* is very abundant in the southern portions of our republic, and has been used to some extent as a substitute for fustic, some even asserting its superiority over the latter. A coloring matter sold under the name of aurantin has been looked upon as an extract from the wood of *Maclura aurantiaca*,* and is said to be much stronger than the yellow dye known as flavin, and also nearly five times the strength of Persian berries. In some portions of the South, the wood of *Maclura aurantiaca* is not only used for dyeing, but also for tanning. From these facts, as also from the physical properties of the wood of the *Maclura aurantiaca*, and its close botanical relation to *Morus tinctoria*, it was thought the same acid principles could be obtained from it. With this object in view, the following examination was made in the laboratory of the College, and the results show conclusively that these principles exist in *Maclura aurantiaca*, though not in large quantity.

Maclura aurantiaca, Nuttall, natural order Urticaceæ, is a small bushy tree, rising to the height of 25 or 30 feet, dividing near the

* See American Journal of Pharmacy, 1872, p. 299.

ground into numerous slender branches. Leaves petiolate, entire, five to six inches long, and two to three inches broad, ovate, acuminate, smooth and shining on the upper surface, on the under side minutely pubescent. Fruit, when ripe, resembles the largest oranges, composed of numerous coalesced, rather woody carpels, giving the surface a tuberculated appearance. Seeds imbedded in the fibrous mass, about the size of those of a quince.

In the Southern and Western States this tree abounds, and is well known under the names of osage orange and bois d'arc, or bow wood, the latter name being given it on account of the uncommon elasticity of the wood, thus affording the material mostly desired by Indians for bows. In some localities it is cultivated for hedges.

The root as obtained presented the following appearance: In various sized pieces, from ¼ to 1½ or two inches in diameter, heavy and compact; the woody portion of a yellowish-white color; bark resinous, of a lighter appearance than the wood, where cut by the knife showing a green-black color, and having a slight bitter and astringent taste, freely exfoliating in thin papyraceous layers, of a handsome orange color.

Preliminary Examination.—Of the fresh bark a decoction was prepared by repeated exhaustion with boiling water. By the aid of paper pulp this was filtered, and then gave a clear brown-red solution, which was submitted to the following tests:

Iodine, added to a diluted portion, gave slight blue coloration, showing the presence of starch.

Upon the addition of two bulks of alcohol to a portion of the decoction, a copious precipitate was formed. This, being separated upon a filter, and treated with cold water, was found to be entirely soluble, the absence of pectin being thus shown. By reprecipitation from the aqueous solution by alcohol, separation from the fluid, and thorough washing with alcohol, this matter was obtained nearly white, and upon trial showed the characters of gum.

By Trommer's test, the decoction showed abundant evidence of the presence of glucose.

Upon the addition of ferric chloride to the decoction, a green-black coloration was produced, which was not evanescent upon being heated, thus proving the absence of gallic acid, and seeming to indicate the presence of tannin. When solution of gelatin was added to a portion of the decoction no precipitate was produced, thus showing that

gallotannic acid was not present. (According to Chevreul, moric acid is precipitated by solution of gelatin, but this is denied by Wagner. Further experiments made with moric acid obtained from *Maclura aurantiaca* proved that it is not precipitated.)

Upon addition of an alkali to the decoction, a bright yellow color was produced, this seeming to indicate the presence of moric acid.

To litmus the decoction gave a decided acid reaction.

With iodohydrargyrate of potassium no precipitate was produced.

When digested with animal charcoal, the decoction was entirely deprived of all bitter taste and coloring matter, alkalies not striking a shade of color with the liquid filtered from the charcoal. Experiments having in view the separation of the coloring principles from the charcoal gave no satisfactory results.

The decoction, upon evaporation, gave a soft extract, of a brown color, and having a sweet, astringent taste, with a trace of bitterness.

A cold infusion of the fresh bark, when heated to boiling, was not coagulated, showing the absence of albumen. With alkalies and ferric chloride the infusion gave the same reactions as the decoction.

By distillation of a portion of the fresh bark with water, a liquid was obtained having the odor of the bark, but being perfectly clear and transparent. This would indicate the presence of but a small amount of volatile oil.

The distillate gave no coloration with alkalies, showing the non-volatility of the coloring principles with the vapors of water.

Final Examination.—Eight troyounces of the fresh bark were cut up small and boiled with successive portions of water until exhausted. The dregs from this boiling were dried and then reduced to powder. The mixed decoctions were filtered by aid of pulp of paper, and evaporated to eight fluidounces. Upon the addition of alcohol, the gummy matter was precipitated, and separated by filtration, the filter being washed with alcohol, and the washings added to the liquid. This hydro-alcoholic solution was then evaporated to a soft extract and redissolved in about four fluidounces of alcohol. To this was added ether in sufficient quantity to precipitate the glucose as a thick syrupy fluid, from which the ethereo-alcoholic solution was separated. To this was added eight fluidounces of water, and by careful distillation the ether and alcohol were separated, the aqueous liquid then being set aside. After standing for two or three days a deposit of a brown color was found. This was separated upon a filter, the mother water

concentrated and again set aside. A second deposit was thus obtained, which was separated and mixed with the first. Upon applying some of the tests as laid down by Wagner for moric acid, this product was found to agree with them. The mother water gave strong evidence of containing morintannic acid. The substance supposed to be moric acid was then purified by repeated solution in alcohol and precipitation by water. After this treatment the product was quite small, being less than one gram. It was of a dark-greenish color, readily soluble in alcohol, giving a brown red solution, sparingly soluble in cold water, more so in hot. To litmus it gave a strong acid reaction. Upon applying the tests for moric acid, it was found to agree with them, except in that with ferric chloride. This test should give a garnet-red coloration, but the color produced was a greenish-black. This was ascribed to the presence of a small quantity of morintannic acid, as, according to Wagner, ferric chloride produces this coloration with moric acid, if the latter is contaminated with any morintannic acid. The following tests for moric acid proved its presence in the substance extracted:

1st. Sparing solubility in cold water.

2d. Free solubility in alcohol and ether.

3d. Precipitation from its alcoholic solution on the addition of water.

4th. Solubility in H_2SO_4, and precipitation on the addition of water.

5th. Lemon colored precipitate in aqueous solution by $SnCl_2$.

6th. Non-precipitation in aqueous solution by gelatin.

7th. Olive-green color of aqueous solution by $FeSO_4$.

8th. Yellow color by alkalies and alkaline carbonates.

Upon examination of the substance for bases, calcium and iron in the ferric state were clearly proven, thus showing it to consist of these metals with excess of moric acid. The presence of morintannic acid in combination with iron would explain the dark-green color of the moric acid.

The coloring power of the acid was tested by making an aqueous solution, and immersing in it a piece of mordanted cotton cloth. A fine yellow color was acquired, which, however, was not entirely permanent.

The mother liquor from which the moric acid was obtained showed, by the following tests, the presence of morintannic acid:

1st. Astringent taste.

2d. Free solubility in water, alcohol and ether.

3d. Yellow color upon addition of alkalies.

4th. Non-alteration in aqueous solution by H_3PO_4, H_2SO_4 and HCl, thereby distinguishing it from gallotannic acid.

5th. Green-black coloration with Fe_2Cl_6.

The dregs left after exhaustion of the bark with water, being dried and reduced to powder, were exhausted with alcohol by percolation, and yielded a resinous tincture, of a dark-red color. By pouring this into a large quantity of distilled water, the resin was copiously precipitated, and when collected, washed and dried was of a brown color and almost devoid of taste.

One gram of this resin treated with ether lost ·65 gram, showing that ether dissolved of it nearly two-thirds by weight.

In the fixed alkalies, the resin was entirely soluble, giving a deep-red color, from which solution it was precipitated by acids.

Five grams of the fresh bark lost, by careful drying, 1·8 gram., showing 28 per cent. of moisture.

Examination of the ash from a portion of the bark showed the following constituents: carbonic, phosphoric, sulphuric and hydrochloric acids; calcium, potassium, sodium, magnesium and iron.

Summary.—From the foregoing analysis of the bark of the root of *Maclura aurantiaca* its constituents may be said to be: starch, glucose, gum, resin, volatile oil in minute quantity, moric and morintannic acids.

A partial examination of the woody portion of the root gave evidence of the presence of coloring matter, though seeming in much smaller quantity than in the bark.

A VISIT TO SHAW'S GARDENS.

By Richard V. Mattison, G. P.

The Missouri Botanical Gardens, or Shaw's Gardens, as they are familiarly termed by the citizens of St. Louis, are situated at Shaw and Tower Grove avenues. A few days since, while visiting the city on business, opportunity was given the writer to pay a visit to this beautiful place, and, while spending a pleasant afternoon, a few notes were taken, which are here presented, with the hope that they will prove interesting enough to the readers to cause them, when visiting the "future great" city, to also pay a visit to the beautiful gardens adjoining Tower Grove Park.

Upon entering the gate the visitor is struck by the beautiful shrubbery upon every side, with handsome hedges bordering on paths leading to the *Arboretum*, or portion devoted to the culture of various forest trees.

This portion is intensely interesting to a lover of nature, even if not botanically inclined. Long rows of the handsome *Pinus strobus*, or American white pine trees, are upon either side of the walks, and these are interspersed with silver-leaved maples and thrifty oaks and elms, all carefully pruned and cared for.

Juglans cinerea and *niger* stand side by side with *Larix europæa*, while in turning in from the gateway a very fair specimen of English elm stands almost opposite the Scotch elm, or *Ulmus montana*, and the *Acer platanoides*, from Norway, leans complacently toward the *Acer saccharinum* of our own country, while scattered here and there are fine specimens of the Japanese maiden hair tree, *Salisburia adiantifolia*, intermingled with basswood, *Tilia americana;* lime, *Tilia rubra;* and white linden, *Tilia alba*.

Of the genus *Pinus* the collection is particularly fine; within a few paces of each other the writer noticed *Pinus strobus*, *P. austriaca*, *P. sylvestris*, *P. mugho*, *P. rubra*, *P. Benthamiana*, *P. edulis*, *P. rigida*, while in *P. inops* we recognize the familiar Jersey pine by the side of a specimen from the Pyrenees mountains.

Juniperus communis and *J. virginiana* are in company with the Chinese variety, *J. chinensis;* while the cypress and white cedars of Lebanon are drawing sustenance from the same soil with *Salix alba*, and *Abies balsamea*, and *A. excelsa*.

The effect of this mixture of different foliage is very striking, and this alone is well worth coming some distance to see, while for botanical students the advantages which these groups afford for study are excellent.

Passing alongside of the conservatory, we noticed several interesting specimens; one of the *Laurus nobilis* is particularly fine, and reminds us of the leaves of the same variety frequently met with upon opening cases of Calabria licorice extract. Next to this are the lemon trees and common laurels from the Levant. Fine specimens of *Acacia longifolia*, *A. verticillata*, *A. melissina*, *A. Farnesiana*, *A. angustifolia* (New South Wales), and *A. cultriformis* (Australia), are also found here. The guava tree, *Psidium cattelianum*, and African Baobab, *Adansonia digitata*, are also here, with a fine female specimen of the *Cephalotaxus fortunei*.

One thrifty specimen particularly engaging our attention is the at present medicinally fashionable *Eucalyptus globulus*, and by its side the famous Banyan tree, *Ficus indica*. Equally interesting is a fine healthy specimen of *Camphora officinarum*, from Japan, the product of which is in such active demand at this season at our dispensing counters.

We notice also *Melia azederach*, which brings fresh to our memory our student days under Professor Maisch, and our inability to rightly place the habitat of this plant; to the right we find *Piper nigrum* with *Ficus elastica* (India rubber tree), and *Isonandra gutta* (gutta percha tree), neither of which are "Goodyear's patent." Further on we find probably forty specimens of cactus and other Mexican and South American plants.

Upon entering the Conservatory the first plant noticed is the New Zealand flax, *Phormium tenax*, and next to it is the Egyptian pepper plant; next, the Australian fig. A specimen of *Aralia angustifolia* nearly reaches the ceiling, and upon either side are fine specimens of *Coffea arabica*, and also one solitary specimen of *Cinchona alba*. The *Musa chinensis*, or sweet banana tree of China, is the central figure of the groups of plants in this room, and surrounding this are eleven species of *Ficus*.

The central room of the Conservatory is mostly devoted to ferns and palms. The most prominent are the Talipot palm (Ceylon), Royal palm (Cuba), Fan palm (China), Areca palm (New Holland), and Sago palm—of the latter, several fine specimens, besides one curious specimen from the Sandwich Islands. Intermingled with these are two fine specimens of *Aloe arborescens* from the Cape of Good Hope, and the banana tree, *Musa sapientum*, from the same locality, is found with the African dragon tree, and Chinese fragrant olive, *Ficus carica*, while numerous species of *Cassia* and screw pines, from Java and the Isle of Bourbon, with elegant bamboo cane, complete this group.

In the next room are several varieties of aloes, the most prominent being *Aloe socotrina* and *A. spiralis*; not less interesting are several specimens of ribbon sugar cane from Otaheite.

Fronting the Conservatory are the flowering and herbaceous plants, arranged in beds, each of which is devoted to a particular natural order. The beds are arranged concentrically with borders of *Arbor vitæ*, which gives the whole a very attractive appearance. We noticed

particularly the orders Solanaceæ, Plumbaginaceæ, Labiatæ, Verbenaceæ and Compositæ.

For the student of materia medica, botany, etc., these gardens offer advantages unequalled in this country, being greatly superior to the Government Botanical Gardens at Washington, and should be highly appreciated by the embryo druggists in attendance upon the lectures of the St. Louis College of Pharmacy. Should they profit by the suggestions thrown out from time to time by the eminent botanist of this city, Dr. Engelmann, we may hope for valuable contributions to the materia medica of the Western States. In conclusion, I hope all our Eastern pharmacists visiting here may find much pleasure and profit intellectually in a visit to Shaw's Gardens.

St. Louis, Fifth month 18*th*, 1874.

EXAMINATION OF FOUR SAMPLES OF CREAM OF TARTAR.

By Thomas C. Hilton, G. P.

Abtract from an Inaugural Essay.

Two of the samples were obtained from drug stores, Nos. 3 and 4 from groceries, all being recommended as perfectly pure. None answered the pharmacopœia test of being completely soluble in hot solution of potassa.*

The samples were analyzed by being treated with excess of ammonia, boiled, cooled and filtered; the undissolved portion was treated with dilute hydrochloric acid and any insoluble portion was removed by filtration.

The ammoniacal solution of No. 1 contained potassium, little calcium, and tartaric acid; the muriatic acid solution contained calcium and tartaric acid.

In the ammoniacal solution of No. 2 was found calcium, magnesium, potassium and tartaric acid; in the muriatic acid solution, calcium,

* This test appears to us as hypercritical, since cream of tartar cannot be completely purified from tartrate of calcium by recrystallization, and its purification by acids involves considerable trouble and loss. The British Pharmacopœia very properly admits a small quantity of the calcium compound, which does not appreciably interfere with the medicinal properties. If an *absolutely pure* cream of tartar is considered necessary, a formula for its preparation from the commercially pure article should be given.—*Editor Am. Journ. Pharm.*

magnesium, tartaric and carbonic acids, the latter producing effervescence.

No. 3 yielded to the ammoniacal solution calcium, magnesium, sodium, potassium, tartaric and hydrochloric acids; and to the muriatic acid solution calcium, magnesium, tartaric and carbonic acids; a small insoluble residue of starch remained behind.

No. 4 furnished an ammoniacal solution containing calcium, magnesium, postassium, sulphuric and tartaric acids; a muriatic acid solution containing aluminum, calcium, magnesium, tartaric and carbonic acids; and an insoluble portion consisting of starch. The sample was free from ammonia compounds.

The following are the results of the examination of these powders:

The first was found to be commercially pure, containing only potassium bi-tartrate and some calcium tartrate. It had a fine white appearance, and an agreeable acid taste.

The second, beside potassium bi-tartrate and calcium tartrate, contained magnesium carbonate, as an impurity. It was rather whiter than the first, probably due to the magnesia; it had also an agreeable acid taste, the magnesia being scarcely perceptible to the taste.

The third contained as impurities magnesium carbonate, sodium chloride and starch. This powder, though nearly as white as the first, did not have the fine appearance which characterized that sample, and had besides a different taste.

The fourth contained as impurities alum, magnesium carbonate and starch. This was the most impure of all, had a much darker appearance than any of the others, was inclined to cake and had a disagreeable musty odor, and a sour, somewhat astringent taste.

THE CONSTITUENTS OF DR. SAGE'S CATARRH REMEDY.

By Adrian Bowens, G. P.

Condensed from the Author's Inaugural Essay.

This popular nostrum is manufactured in Buffalo, N. Y., and is put up in bottles containing half an ounce of a dark green powder having a strong odor of carbolic acid and camphor, the taste being in addition salty and lastingly bitter.

For the purpose of obtaining a clue to the composition the following preliminary experiments were made:

The powder, heated on platinum foil, gave off vapors of carbolic

acid and camphor; an increased heat caused a portion of the powder to burn; the residue was treated before the blow-pipe, when, after the carbonaceous matter had been completely burned off, the powder finally fused, thus showing that there were present three distinct classes of bodies, viz., 1st, a volatile; 2d, an organic; and 3d, an inorganic body, non volatile, but fusible.

About a drachm of the powder was exhausted with distilled water, and the resulting filtrate evaporated to one-half; a portion of the liquid was tested for the presence of an ammonia compound, and then successively treated with hydrochloric acid, sulphuretted hydrogen, ammonia and sulphhydrate of ammonium, carbonate and phosphate of ammonium, all giving negative results.

The other portion was then evaporated and ignited, the residue dissolved in distilled water and tested in divided portions with perchloride of platinum and antimoniate of sodium, the latter only giving a white precipitate, proving the presence of sodium.

Another portion was examined for acids, but only one, hydrochloric acid, was found.

The residue left in the percolator was next exhausted with 95 per cent. alcohol, the percolate evaporated to a small bulk and allowed to stand for twelve hours; it was then found to have produced a large number of beautiful needle-shaped crystals of a yellow color and a bitter taste. Perrin's test gave the very characteristic and beautiful green spangles of an iodo-compound of berberina.

This exhausted powder was carefully examined by the microscope, and was found to be partly of a cellular structure and to contain starch; the latter was subsequently confirmed by the appropriate tests. This body I do not hesitate to call Hydrastis canadensis.

About two drachms of the catarrh remedy were subjected to distillation, which yielded a distillate having a strong odor of carbolic acid and camphor and separating gradually oily-looking globules, which were carefully separated and subjected to cold, after which they became solid and crystalline; this, together with the blue color produced on the addition of neutral sesqui-chloride of iron solution, is quite sufficient to distinguish carbolic acid from the closely allied creasote.

To another portion of the globules dissolved in water was added caustic potassa; immediately a white flocculent precipitate rose to the surface; this was separated by means of a filter and washed with hot

water, to remove adhering carbolic acid; by the odor and tase it was found to be camphor.

The powder operated upon, after being exhausted with water and alcohol, was blue, and, upon examination, was found to contain indigo; this, therefore, accounts for the green color of the original powder, the yellow hydrastis and blue indigo producing green.

A number of experiments were now made, by which it was found that a mixture in the following proportions very closely resembled Dr. Sage's Catarrh Remedy.

℞ Hydrastis canadensis, . . gr. v.
Indigo, ... gr. ss.
Camphorae pulv.,
Acidi carbolici, . . . *aa* gr. ij.
Sodii chloridi, ... gr. l.

Powder the camphor by means of a drop of alcohol and mix with the salt, previously reduced to a moderately fine powder; rub the indigo and carbolic acid together, mix with the salt and camphor, and lastly add the powdered hydrastis, and mix intimately, without much pressure, in a mortar.

The above manipulations I found necessary to follow in order to obtain the powder in the same degree of fineness as the commercial article.

MISTURA ASSAFŒTIDÆ.

By David Ackerman, Jr., G. P.

Condensed from an Inaugural Essay.

In the earlier part of the hot summer months a mixture was prepared by selecting 240 grains of fine tears of assafœtida. These were rubbed to a uniformly fine mass, then triturated with a fluidounce of glycerin to a thick paste, a fluidounce of water added, and the whole incorporated thoroughly by being well triturated. The dissolved portion was decanted, and the residue treated in like manner with the same quantity of glycerin and water, and mixed with the previous portion.

A portion of this was diluted to the officinal standard, which, after standing exposed to heat and light for a few days, assumed a faint reddish tint, which gradually deepened, on standing a week, to a deep red color.

A similar quantity of officinal mixture was prepared, of similar

quality of assafœtida, and at the same time as the foregoing. This, also, assumed a faint reddish tint, but remained sweet for several weeks.

The concentrated mixture also became oxidized, and assumed the red color of the former, after standing about the same length of time.

Another lot was prepared, using one-half the quantity of glycerin employed in the former, and adding instead another part of water, using the same mode of preparation as before.

About the same time some selected tears were reduced to powder by the process recommended by Mr. S. B. Proctor, namely, by softening the gum resin in a vessel, by means of a water-bath, and incorporating with it, by stirring, six per cent. of magnesia, and reducing it to powder. This, when mixed with water, gradually changed from white to green, the color continuing to deepen and change, until, at the end of ten or twelve hours, it was a blue black. The idea of this preparation was to obtain a powder of pure assafœtida, with which the mixture could be made by shaking in a bottle, without needing to resort to the mortar, and, as the powder prepared in this manner was recommended not to agglutinate in the manner of the ordinary powder, could be kept on hand as wanted, and a mixture formed with very little inconvenience; but my experience with it cannot recommend it.

Finding the last mixture with glycerin tending to spoil, I mixed with it a small portion of diluted acetic acid. This appeared to immediately arrest oxidation, and the mixture remained in a comparatively good condition for some time. This suggested the idea of using the following formula, which, so far as my researches and present knowledge go, has proved successful:

℞.	Assafœtidæ (finest tears), . .	240 grs.
	Sacchari Albi, . . .	90 grs.
	Acidi Acetici Diluti, . . .	fʒi,
	Aquæ Fluv., . . .	fʒiij.

The assafœtida, after having been rubbed uniformly fine, was mixed with the sugar, and the two well rubbed together. Sufficient water was added to bring it to a paste, and the remainder of the water added in successive portions, until the soluble matter was all taken up, each portion being carefully decanted. To this was added the diluted acetic acid, the whole well shaken together, and kept pro-

tected from the action of the light, the heat being the same as in the previous experiments.

This at the end of three months was found to have retained all the characters of the fresh mixture, the deposit being easily mixed by a little shaking, the color being nearly white with a very faint tinge of pink, and the odor of the volatile oil being well developed and natural; altogether the general appearances indicating that the mixture had remained unchanged.

This mixture, properly diluted, has been dispensed with the sanction of the prescribing physician, and gave entire satisfaction, it containing nothing in any way detrimental to its therapeutic value. The author believes that the concentrated mixture as prepared above may be kept from year to year, and by diluting with three times its bulk of water will readily yield an assafœtida mixture equal in quality with the officinal. The selection of the finest assafœtida, the use of pure water, thorough trituration, exclusion of light, and protection from heat, are considered requisites for the successful preparation and keeping of the proposed mixture.

For the cleaning of mortars in which assafœtida has been used, the author recommends potassa solution, to be followed by a paste of bitter almonds, peach kernels, or cherry laurel leaves, and afterwards by soap and water.

ON LAWS INTENDED TO REGULATE THE PRACTICE OF PHARMACY IN THE UNITED STATES.

By Charles C. Fredicke.

With reference to the article on the same subject in the previous number of this Journal, and in order to explain more fully our position, it is necessary to enter into this matter more minutely.

In the statutes or codes of these States we can find nothing about pharmacy; we are there referred to as "dealers in drugs or any other person." This is in perfect accord with the position which the Government occupies towards the drug business, and *vice versa*. Pharmacy, not being recognized by the Government as a profession, not existing, as it were, must first be established before it can be regulated. The same is true with regard to medicine, with this exception, however, that when the Government needs a physician for its army, that physician must prove his qualification, not according to the standard of the incorporated college where he graduated, pro-

bably with the highest honors, but according to the standard of the Government; his diploma is not and cannot be accepted as a proof of professional qualification, it being received as evidence of academical acquisition of having arrived at his profession in a systematic manner; he must qualify according to the standard of the Government, which demands professional experience. Here, then, the Government does for the army what it must do for the people; but, before it goes about regulation, it must first establish, or at least recognize, such a thing as medicine or pharmacy, and maintain and enforce its Governmental standard; it cannot, even if it wished, recognize as such, the private standard of an incorporated college, which is only a private institute, maintained by private means and established for private ends.

Medicine, or the business of healing diseases, and pharmacy, or the business of selling drugs, occupy no other position towards the people than any other trade; they are not considered as professions in our country, though nobody can deny that they are, in the most noble sense of the term. Jurisprudence being considered a profession by the Government, it maintains a standard; for after a student has graduated at an incorporated or private school of law, he is not admitted to the bar unless he has proved his professional qualification, because the Government wants law and order, not according to what is law in England, France, Germany, etc, but according to its own standard, which, in this case, is its constitution. If a foreigner was ever so proficient at the bar in those countries, he could not be admitted to practice his profession here unless he had proved his qualification according to the Governmental standard. If medicine and pharmacy were professions, and so acknowledged by the Government, then a foreign physician or apothecary would not be allowed to practice unless he had proved his professional qualification according to our rules. An American physician or pharmacist, after he has graduated in our colleges, is considered entirely incompetent to practice his profession in France, England or Germany, unless he has conformed to the requirements of those States. We are received with the greatest politeness and respect, but practice we cannot; even if we step across our border into her Britannic Majesty's dominion of Canada, we cannot do this. There are those who say that this is a free country, that we have no king here, etc.; yet what is sauce for the goose is sauce for the gander. Besides, these and similar reasons are but sinister, having no weight in this matter.

All laws with regard to pharmacy, thus far enacted, are but contemptible compromises with free trade secured by the Constitution of the United States. As soon as a State establishes pharmacy, regulating it, etc., it also establishes a standard of qualification, and the diploma by a European university is no evidence of professional qualification at all, and cannot be admitted as such, as compared with our standard.

In the year 1830, the College of Pharmacy of the City of New York prosecuted several dealers in drugs, because they did not conform to the laws enacted by the Legislature of that State; they had to close their business, but appealed this case of interference to the Supreme Court of the United States, which Court declared these laws contrary to free trade; and the College of Pharmacy of New York had to pay an amount of damages, in consequence of which it came very near dying of anæmia.*

There are certain branches in the Government from which politics must be and ought to be excluded—they are the educational, financial and sanitary systems of a State—and since the effectiveness of such laws depends upon those who may be called upon to carry them out, and since their appointment rests with a political officer here, he is, as a matter of course, more influenced by party considerations than by the professional fitness of the aspirants.

But pharmacy must be either a profession or it must be a trade; if the former, then it forms an integral part of the sanitary system of the State. As a profession, it occupies a position distinct from any other business, free trade, free country and all to the contrary notwithstanding. If the State regulates pharmacy, it must, of neces-

* The above reference to the College of Pharmacy of the City of New York is erroneous. This College was not incorporated in the year 1830; its first charter was dated April 25th, 1831. The first law relating to the practice of pharmacy in that city was passed March 11th, 1839; it could not be enforced, because the institution, for whose benefit the fines were to be collected, was incorrectly named in the law, and for that reason was unwilling to prosecute; the New York College of Pharmacy had merely to register the apothecaries, free of charge, received no pecuniary benefit from this law, and could not prosecute under it; it could not, therefore, be liable for damages, even if the closing of several stores and the asserted legal decision had taken place, of which circumstances we have never been informed. The pecuniary troubles of the College arose from an entirely different cause, the lawsuit finally being decided *in favor of the College of Pharmacy of the City of New York.*—Editor Am. Journ. Pharm.

sity, do it in accordance with its Constitution; and, if this is impossible, then that Constitution must be amended. It cannot do it by circumventing these principles, for such attempts are known by their fruits, of which we have a sample in our registration acts—this lame imitation, in our free country, of a still lamer English precedent,—a lame imitation, because in England they examine and register pharmacists, and prosecute them for accidents to the last degree, on one hand, and on the other they allow a dealer in groceries to huckster all medicines, drugs nnd poisons most generally in use.

Pharmacy is a profession in France and Germany; its practice is the concern of the Government of those States, and is regulated according to its orders. The movement which has been going on during the last few years in Germany towards the "Freigebung des Apothekergewerbes" is generally misconstrued in this country; for it is no evidence at all of a tendency in the direction of that English precedent or our imitation of it. That movement has about as much influence on the existing order of the profession of pharmacy in Germany as our registration act on the existing order of huckstering drugs in this country; for it requires a "Beschluss" or an act of the "Reichstag" of the German Empire before those "Gewerbefreiheit" shriekers can reduce the profession of German pharmacy to a "Gewerbe," that is a trade. The German Empire is a constitutional monarchy; and it requires an act of Congress in our constitutional republic to elevate that trade to the rank of a profession. If they should accomplish it, however, then it is true that pharmaceutical supervision by the State will hardly mean anything else but to insure the thorough qualification of the pharmacist and his personal responsibility, but it will then also be true that a trade is no profession, and that when the dealer in groceries of Germany, the manufacturer of quack nostrums *et id genus omne*, stand on the same footing in all material points, then Continental Europe will form a striking example of English and American free trade.

The Governmental machinery of those States is slow, but solid and compact; nor can this be otherwise, because forty millions of people are living on an area not much larger than the State of Texas. It is not likely that German pharmacy will be reformed so as practically to be a free trade.

We here are and have been agitating to raise the free business of selling drugs to the rank of a profession, but the Constitution secures

free trade to every citizen; therefore, as we value free trade, it would be more consistent with our condition and position to let our calling take care of itself, because as soon as we claim to be more than dealers in drugs, we expose ourselves to exactions by the people, based upon assumptions to which at present they possess no right whatever. If they wish to saddle labors and responsibilities on us, there must be compensation, because we, a part of the people, cannot relinquish our civil rights to the benefit of the whole for nothing, for we are *dei gracia* sovereign citizens of a free country. The District of Columbia, the State of New York or Kentucky, cannot expect to obtain a system of pharmaceutical supervision at private expense. They possess no pharmacopœia, etc., and if pharmacy is so delicate a plant that it cannot be exposed to the free air, then its cultivation and acclimatization had better be abandoned, because it will be a costly failure. Neither does a State possess the right to exact qualification and responsibilities from one portion of her citizens in a business, while allowing another portion to sell drugs *ad libitum* without conferring on the former certain well-defined prerogatives on account of such qualification, etc.; but these prerogatives do not consist in keeping account of the sale of dangerous drugs for nothing, neither do they consist in paying more licenses and fees than the quack nostrum manufacturer or the retail or wholesale grocer-druggist, etc.; on the contrary, they must consist, for instance, in the prerogative that the latter is entirely enjoined from meddling with pharmaceutical preparations, on account of his incompetence, and when the people buy drugs from him in their assumption "to doctor" themselves—an assumption which they have been accustomed to so long that they consider it as a right—then they (the people) must be made to learn and know that they also assume all consequences of such doctoring, and that they are *ipso facto et jure* prevented from bringing suits for damages against such dealer in drugs.

These are the main preliminaries, if our position shall be defined with reference to free trade, qualification, etc.

Chicago, May, 1874.

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

On the Examination of Oil of Peppermint a valuable paper has been published by Prof. Flückiger, in "Pharm. Handelsblatt," April

1st. The author calls attention to the fact that the optical behavior is no reliable criterion for the purity of volatile oils, the rotatory power of their proximate constituents being influenced and often reversed by various agents. Even the color reactions are more or less dependent upon the relative proportion of these compounds; but some are so characteristic that they deserve attention. Thus oil of peppermint is colored beautifully green or blue by a very small quantity of nitric acid, and it acquires at the same time a fluorescence, appearing copper-red by reflected light.*

The influence of chloral upon oil of peppermint has been noticed by Jehn.† The author found that his samples of the oil were colored but slightly brown or yellow by chloral hydrate, even after the application of heat; but anhydrous chloral alters the oil gradually at ordinary temperature. Of two samples which showed exactly the same behavior to nitric acid, one acquired, with one-fifth volume of anhydrous chloral, gradually a brown color, while the other turned green, the color being always purer and richer after a contact of some hours or days in the cold.

Concentrated sulphuric acid or bromine also show peculiar colorations; the reaction should be moderated by the addition of carbon bisulphide. Very remarkable differences are observed on agitating different samples of the oil with a saturated solution of bisulphite of sodium; one was colored green, then blue; the other rose-red, violet, &c.

The author suggests to those having authentic samples of oil of peppermint, to endeavor to ascertain the cause of this different behavior.

Ampelopsis hederacea. The juice of the berries was examined by Von Gorup-Besanez, who found the same constituents previously obtained from the leaves,* except glycolic acid.—*Buchner's N. Repert.* 1874, p. 181.

The Flowers of Tilia argentea, Desf., have been met with in Europe as a substitute for the flowers of *T. parvifolia* and *grandifolia*, Ehrh. The former species is cultivated in Europe as an ornamental tree; its flowers have larger bracts, which are of a greener color than the officinal, finely reticulate above, and underneath densely covered with

* See *American Journal of Pharmacy*, 1871, p. 164.
† Ibid., 1873, p. 447.
* See *American Journal of Pharmacy*, 1872, p. 165.

stellate hairs, which readily separate, when dry forming a woolly irritating powder; the flowers have, particularly in the fresh state, an odor reminding of hyacinth and lily of the valley.—*Pharm. Post*, 1874, *No*, 9, from *Schweiz. Wochenschr. f. Ph.*

Oil of Dill. R. Nietzki obtained from the fruit of *Anethum graveolens* a volatile oil, which commenced to boil at 155° C. (311° F.), the boiling point rising gradually to 260° C. (500° F.) About ten per cent. of the oil consists of a carbohydrogen $C_{10}O_{16}$, having the boiling point 155 to 160° C., 60 per cent. boiling at 170—175° C. (338—347° F.), of the same composition, and 30 per cent. with the boiling point 225—330° C. (437—446° F.), composition $C_{10}H_{14}O$, and identical with carvol. The odor of the first portion of carbohydrogen reminds of turpentine; that of the second portion resembles oil of mace, but when mixed with a little carvol, the characteristic dill odor is at once produced.—*Archiv d. Pharm.*, 1874, *April*, *p.* 317.

A Simple Contrivance for Filtering at Elevated Temperatures has been suggested by A. Horwarth, and successfully tried in the laboratory of Prof. Schneider, in Vienna. A soft lead pipe, about one centimeter in diameter, is coiled closely around a glass funnel, so that the windings remain in close contact; both ends of the pipe are sufficiently long, the upper end being used for admitting the vapors from a retort or flask, and the lower end being connected with a suitable receiver. By using liquids distilling at different temperatures, and passing their vapors through the coil, any desired temperature may be maintained in the funnel.—*Pharm. Centr. Halle*, 1874, *No.* 11.

New Method of Administering Iodine. P. Collas reports that Prof Boldeau has obtained very satisfactory results by using, in the hospital of Beaujon, an iodated albumen, prepared as follows: A solution of albumen is continually agitated with iodine in very fine powder, or dissolved in a suitable vehicle; the liquid assumes at first a deep brownish-black color, which disappears after several hours, and starch is then not colored blue by it. The solution is now evaporated to dryness, at a low temperature, and made into pills, each containing five milligrams ($\frac{1}{13}$ grain) of iodine, of which five or six may be taken in 24 hours.—*L' Union Pharm.*, 1874, *April*, *p.* 97.

AILANTHUS GLANDULOSA AS A REMEDY FOR DYSENTERY.*

In a recent issue of the *Archives de Médecine Navale* is published an official note, addressed by Dr. Robert, who is the medical chief of the naval division of China and Japan, to the inspector-general of the health service in the French navy, calling attention to a drug used by Chinese physicians in the treatment of dysentery. It consists of the root bark of the *Ailanthus glandulosa*, Desf., a plant belonging to the natural order Simarubaceæ, very common in the North of China and less so in Japan. It is also frequently cultivated in France and Italy for the purposes of shade, whilst its leaves have been used as food for silkworms.

The bark of the root is the only part employed. It is white when fresh, resembling mallow root, but it acquires a greyish tint in drying. It is fibrous and loose in texture, and is almost without smell. An infusion of this bark however exhales a slightly nauseous odor, and posseses an excessive bitterness resembling that of sulphate of quinia. The Chinese physicians employ the root in the fresh state only; but Dr. Robert, having been compelled to use some that had become dry, found no sensible difference in its action in the two states.

For administration, 50 grams weight of the fresh root is cut into very small pieces and triturated with 75 grams of hot water for a few minutes in a mortar, in order to soften the bark, and then strained. A teaspoonful of this strong infusion is administered as a dose morning and evening, alone or in a cup of tea. Taken in this form, it provokes vomiting. The medicine is administered in this manner during three days, the patient being kept upon full diet. After that time the ailanthus is omitted and the diet is altered to broths until health is restored. If after eight days' treatment the patient is not cured, the Chinese physicians recommence the use of the ailanthus; but Dr. Robert states that he has not met with a single case in which this resumption has been necessary, although he has had under his notice some where the disease had lasted several months, as well as others of more recent origin.

The principal symptoms which follow the administration of the ailanthus are said to be nausea, and sometimes vomiting, followed by a temporary lowering of the pulse. The disappearance of blood from

* Abstract of a paper in the *Répertoire de Pharmacie*, vol. ii. p. 237.

the evacuations commences on the first day and is complete on the second; the colic ceases a little later. The effect of the drug upon the color of the evacuations is variable. Dr. Robert sums up by expressing his opinion that the administration of the *Ailanthus glandulosa*, as witnessed by him in China and Japan, gave superior results to that of ipecacuanha, astringents, alone or combined with opiates, or calomel. The remedy, he says, is only known to a portion of the Chinese physicians, a circumstance which he attributes to their custom of preserving the secrets of their practice.

Dr. Robert states that the root of the *Ailanthus glandulosa* is not usually to be obtained in the Chinese pharmacies; but that in the dialect spoken at Shanghai it is called "hiang" or "siang-tcham," and in the mandarin dialect spoken at Pekin and Tiensin, it is named "tchau-tchoun," which latter agrees with the name attributed to it by Dr. F. Porter Smith in his "Contributions to the Materia Medica and Natural History of China" (p. 6). The latter writer points out that the *Pen Ts'au* includes *Ailanthus fœtida* or *glandulosa* with *Cedrela odorata* and other trees distinguished by their odor, under the common name "Chun-chu." He further remarks that "this species of *Ailanthus* grows all over China, and is met with on the walls of Pekin. The leaves are used to feed silkworms, and in times of scarcity are used as a vegetable, though much less agreeable than the young leaves of the *Cedrela*. They are said to be slightly deleterious, and are used as astringent, anthelmintic, and deobstruent remedies. They are given in diseases of the lungs, dysuria, tabes infantum, menstrual disease, spermatorrhœa, and fluxes in general; and a wash is made to promote the growth of the hair and to wash scabious eruptions and ulcers. In most of these cases the bark both of the tree and the root is used, having precisely the same properties. The bark of the mangrove tree is sometimes adulterated with this inferior substitute." But he does not mention its use in dysentery.

In the non-officinal portion of the Pharmacopœia of India, the *Ailanthus Malabarica*, D. C., a large tree of Ceylon, Malabar, and Concan, is mentioned as yielding an aromatic gum resinous substance, known by the Tamul name of matti-pawl, which is used medicinally, especially in dysenteric cases and as incense. Dr. Gibson regards it as a good stimulant in bronchitic affections. The bark is rough and very thick, with a pleasant and slightly bitter taste; it is studded with bright garnet-looking grains, apparently of a resinous nature,

but not burning like resin or dissolving either in spirit or water. A specimen of the extract prepared from this bark may be seen in the Museum of the Pharmaceutical Society.

The bark of another species of *Ailanthus, A. excelsa*, is mentioned as being used by the natives in dyspeptic complaints, and esteemed as a powerful febrifuge. This bark was the subject of an exhaustive treatise by Mr. Narayan Daji, read before the Grant College Medical Society of Bombay, in which its properties were attributed to the presence of ailanthic acid. *Pharm. Jour.* (*Lond.*) *May* 9, 1874.

DETERMINING THE AMOUNT OF METHYL ALCOHOL IN COMMERCIAL WOOD SPIRIT.

By G. Krell.

The wood spirit of commerce, even when highly rectified, consists of a mixture in varying proportions of different substances, some of which have not yet been studied. Methyl alcohol is not always the chief constituent, but for technical purposes it is very important to know how much it does contain. The methods heretofore in use, such as boiling point, specific gravity, action toward sulphuric acid, caustic soda, salt solution, water and so on, give almost no idea of the real amount of methyl alcohol in the wood spirit. This fact induced the author to institute some experiments for finding the simplest possible method of determining the amount of methyl alcohol in wood spirit. He has arrived at the conclusion that the conversion of wood spirit into methyl iodide is best adapted to give a clue to the quantity of methyl alcohol in it.

By using the biniodide ef phosphorus instead of iodine and phosphorus in the apparatus below described, it is easy to conduct each single investigation always under the same circumstances. Although the quantity of methyl iodide obtained gives no absolute report of the quantity of alcohol present, because such reactions never go off so smoothly as to produce the theoretical yield, yet this method furnishes the means of accurately comparing different specimens of wood spirit. If, for example, pure absolute methyl alcohol be subjected to this treatment, the yield of methyl iodide produced by this may be compared with that obtained from the wood spirit to be tested, and the proportions will show how much methyl alcohol is in the latter.

The principal impurity of methyl alcohol, aside from adulterations, is aceton. The latter, if absolutely pure, when acted upon by the biniodide of phosphorus produces no substance similar to methyl iodide; at the temperature of 100° C. a few drops of a distillate is formed, which on shaking with water almost entirely dissolves. Aceton does not exert any perceptible influence on the yield of methyl iodide, as may be proved by experiment.

It acts differently with another very common impurity of wood spirit, methylacetic ether. With biniodide of phosphorus this substance also produces some methyl iodide, and the results of the experiments show that the methyl of the methylacetic ether is also converted into methyl iodide. This ether, when pure, on being treated, as proposed, with biniodide of phosphorus, yields at 100° C. a distillate, about half of which is soluble in water; the insoluble portion of the distillate is methyl iodide. This method of testing is, of course, influenced by this, but when we consider that, in using wood spirit for methylating anilin, the methylacetic ether also aids in the action just in proportion as it contains methyl, we may disregard the error which this causes when testing for most practical purposes.

There is also a very simple method of determining the quantity of methylacetic ether in wood spirits, by adding a measured quantity of normal soda solution, warming slightly and titrating with normal hydrochloric acid. The difference in the amount of acid required from that indicated by the soda added furnishes the means of calculating the quantity of ether present.

The other impurities in wood spirit are mostly unstudied hydrocarbons, and are present only in inconsiderable quantities. They produce, with biniodide of phosphorus, resinous bodies that yield no distillate at 100° C. Hence there is no danger of the methyl iodide being contaminated by their products, and experiments prove it.

The tests with wood spirits are conducted as follows:

In a glass flask of about 100 grams capacity are placed 30 grams of dry biniodide of phosphorus, PI_2, and the flask closed with a double bored stopper, preferably of glass. Through one of these openings is inserted a small dropping tube holding five c. c.; through the other is a tube bent at an obtuse angle—the latter, when surrounded with a good cooler, to condense and return the vapors, and afterward, by inclining the flask, for distilling it off.

Exactly five c. c. of the wood spirit to be tested are placed in the

dropping tube at a temperature of 15° C., and allowed to drop slowly upon the iodide, about ten drops per minute. When all the wood spirit has been admitted, the flask is warmed for five minutes, in boiling water, the cooler being placed upright. The apparatus is then inclined in such a way that the distillate will run out, and the mixture distilled on a water bath as long as anything goes over. Toward the end of the experiment the whole flask must be immersed in the boiling water. The distillate is caught in a glass receiver, or, better, in a graduated glass tube, narrow at the bottom, so that the narrow portion may be very accurately graduated. The receiver should hold 25 c.c., and, after the distillation, is filled up to the 25 c.c. mark with water, a part of the water being used to rinse out the condenser. If transparent crystals of iodide of phosphonium are deposited in the cooler, the water must be added carefully, drop by drop. The methyl iodide collected in the receiver is shaken with water and its volume read off at 15° C. Five cubic centimeters of absolute, chemically pure methyl alcohol, prepared from methylbenzoic ether, gave 7·19 c.c. methyl iodide, which quantity corresponds very nearly with the theoretical yield. By comparison with the quantity of iodide of methyl obtained from the specimens tested, the quantity of methyl alcohol can be calculated by simple proportion; or, if the space of 7·19 c. c. in the receiver be divided in 100 equal parts, the percentage may be read off directly.—*Journ. of Applied Chem.*, *May*, 1874.

SANTONINIC ACID.

By O. Hesse.

Santonin is the anhydride of an acid, of which hitherto only the salts have been known. The free santoninic acid is obtained by adding an excess of dilute hydrochloric acid to a cold aqueous solution of the sodium salt, and shaking at once the milky liquid with ether. From the ethereal solution granular crystals soon separate out, which are recrystallized from alcohol.

Santoninic acid, $C_{15}H_{20}O_4$, forms white, rhombic crystals, which are not colored yellow by exposure to light. It is sparingly soluble in cold water, more freely in boiling water, and readily in alcohol, but not very freely in ether. Its aqueous solution has a strongly acid reaction, and, when hot, decomposes the carbonates of sodium and calcium. The santonates have an alkaline reaction, and are not col-

ored red by alcoholic potash. When the acid is heated to 120°, it is resolved into santonin and water; the same decomposition is produced by adding sulphuric acid to its aqueous solution; hydrochloric acid acts in the cold in a similar way, but more slowly, while by adding either of these acids to a hot solution of a salt, santonin is at once precipitated.

Cannizzaro and Sestini have lately shown that when santonin is heated for some time with an alkali, it is converted into the stable santonic acid, which is isomeric with santoninic acid, but cannot be reconverted into santonin.—*Journ. Chem. Soc., March*, 1874, from *Deut. Chem. Ges. Ber.*, vi, 1280—1282.

OLD AND NEW REAGENTS FOR COMMON PHENOL.

By Egidio Polacci.

The author points out the distinctions between the blue color produced by phenol and hydrochloric acid with a chip of fir-wood and that given by hydrochloric acid alone. The violet coloration given by perchloride of iron is indecisive as being common to all the phenols. The blue coloration given by the successive action of ammonia and a hypochlorite is less general. As this method turns on the conversion of the phenol into anilin by the action of ammonia, the test is only available where the absence of anilin is satisfactorily demonstrated. Cresylic acid and thymol yield similar results. In complex organic fluids the reaction may fail. The conversion of phenol into picric acid by the action of nitric acid cannot be used for the detection of the first mentioned body, since the same result is obtained with a great variety of bodies. The author pours into a narrow test-tube concentrated sulphuric acid to the height of four or five centimetres, and adds cautiously the aqueous solution containing the phenol, in such a manner that the two liquids may not mix. A formation of three colors is soon perceived at the line of contact of the two liquids. These three are soon reduced to one, a vermillion red, which, setting out from the plane of division, diffuses itself through the entire mass of the phenol solution. This color is stable, and remains unaltered for months. If the red liquid is removed from the acid and treated with an alkali, it becomes yellow without losing its transparency. This reaction serves to detect one part of phenol in about 2000 of water. Another method is as follows:—In a well glazed porcelain crucible is put a

little of the most concentrated sulphuric acid, to which is added a relatively minute portion of bichromate of potash. The mixture is well stirred so that the liberated chromic acid may be uniformly distributed through the sulphuric acid. A small drop of the liquid under examination is placed upon the acid mixture, which immediately gives a brown coloration at the point of contact. If the proportion of phenol is larger than one part in 30,000 the coloration is accompanied with a chocolate-brown precipitate. The author has also examined Landolt's test, which consists in adding to the suspected solution bromine water in slight excess. If phenol is present a yellowish-white precipitate is produced. The sensibility of this reaction extends to one part in 45,500. As Landolt has remarked, precipitates more or less similar, are produced by oxybenzoic acid, the homologues of phenic acid, anilin, toluidin, quinia, quinidih, cinchonia, strychnia, narcotina and morphia. The author considers that the yellowish-white precipitate may be rocognized as tribromo-phenol by the following reactions:—It has a special odor, slightly recalling that of the hydride of salicyle. It is insoluble in acids, but soluble in alkalies, ether, and absolute alcohol. A very small quantity of water completely separates tribromo-phenol from its alcoholic solution. If carefully heated on platinum foil it may be volatilized unchanged without leaving a residue. But if the heat is strong the compound is decomposed and burns with a smoky flame, evolving much bromine, and leaving a carbonaceous residue. A portion placed in a porcelain capsule, and treated with sulphuric acid and bichromate of potash, produces a chocolate-brown color, with the escape of bromine vapors. If the bichromate is dissolved in water, and the experiment conducted in a glass tube, with the application of heat, the liquid takes a fine green color. If gently heated with nitre and concentrated sulphuric acid it forms oily drops of a fine red color, which burn, leaving a bulky carbonaceous residue:—*Chemical News, May* 8, *from Gaz. Chim. ital.* 1874.

RESEARCHES ON CALAMUS OIL.

By A. Kurbatow.

When this oil is submitted to fractional distillation, the boiling point rises from 140° to 280°. The fraction passing over at 170°, when carefully redistilled, gave a considerable quantity of product boiling at 158°—159°. The formula, $C_{10}H_{18}$, represents the compo-

sition of this hydrocarbon. It has a turpentine-like odor, is transparent, soluble in alcohol and ether, and at 0° has a specific gravity 0·8793. It combines with hydrochloric acid, forming a crystalline mass which melts at about 65°.

By rectifying the oils of higher boiling point, a bluish liquid was obtained which boiled at 250°—255°; but after treatment with sodium the color disappeared, and the hydrocarbon boiled at 255°—258°. It has the formula, $C_{10}H_{16}$, but does not combine with dry hydrochloric acid.—*Journ. Chem. Soc., March*, 1874, from *Deut. Chem. Ges. Ber.*, vi, 1210.

PYROGALLIC ACID AS A REAGENT.*

By M. Schlagdenhauffen.

The action of pyrogallic acid upon the alkalies and the alkaline earths is well known. It forms, with the caustic alkalies, dark-brown colored compounds, and with lime water a splendid violet solution, which finally deposits a black product by a decomposition not yet investigated. With the carbonates and bicarbonates analogous results are obtained. A few drops of a ten per cent. solution of pyrogallic acid, added to bicarbonate of magnesia or bicarbonate of lime in sufficiently dilute solution to remain at first uncolored, gives, after six hours, an abundant black deposit. This reaction the author has made use of in the examination of alkaline mineral waters, a yellow coloration being produced at once in the water most impregnated with carbonate, followed, after ten or twelve hours, by a plentiful black precipitate, whilst a negative result, amounting to only a yellow or feeble brown color, has been found to indicate the absence of soluble carbonates. The presence of calcareous carbonates in potable waters may be detected by adding a small quantity of pyrogallic acid in aqueous or alcoholic solution to a few cubic centimetres of the water to be examined.

The alkaloids have also the property of coloring pyrogallol brown, or at least a deep orange yellow, but the reaction is not manifest in less than a dozen hours. This character distinguishes the organic bases from neutral crystallizable bodies and glucosides, the latter remaining perfectly inactive in the presence of pyrogallic acid; the heat of a water bath increases the depth of color. Alcoholic solution

* *L'Union Pharmaceutique*, vol. xv., p. 5.

of mercuric chloride, added to the colored liquid containing the alkaloid, causes immediately a black deposit, but a pyrogallic solution containing a glucoside or neutral crystalline body is not colored by the addition of the bichloride.

Some experiments, based upon this reaction, were made to define the relative alkalinity of the alkaloids. A gram of pyrogallic acid dissolved in 10 c.c. of alcohol, added to 2 c.c. of a saturated alcoholic solution of mercuric chloride, was used as the reagent. Two or three drops were placed in a porcelain capsule, and a few crystals of the substance to be examined added. In some cases the crystals were blackened immediately upon contact; others at first took a light tinge, and became more colored after a few minutes; whilst some alkaloids only became colored after a slight elevation of temperature. The following represents the result of the experiments:—

	In the cold	With heat.
Atropia. . .	Black, immediately	Black.
Veratria . .	" "	"
Codeia . .	Brown, immediately	"
Quinidia . .	" "	"
Cinchonidia .	" "	"
Thebaina .	Pale yellow; brown after ¼ of an hour	"
Narcotina . .	Ditto ditto ditto	"
Papaverina .	" " "	"
Brucia . .	No change at first; brown after ¼ of an hour . . .	"
Strychnia . .	Ditto ditto ditto	"
Delphinia . .	" " "	"
Morphia . .	" " "	"
Quinia . . .	" " "	"
Cinchonia . .	" " "	"

In operating with neutral crystallizable bodies and glucosides, and heating the mixture, the black coloration was never obtained, and even the residue never presented a color darker than that produced by a mixture of the body with the bichloride or pyrogallol used separately.

Picrotoxin, phlorizin, salicin, santonin, æsculin, coumarin, amygdalin, meconin, and digitalin, in no instance resembled the alkaloids in their behaviour. It would therefore appear that the pyrogallo-

mercuric, like the guaiaco mercuric test, can be used to distinguish the glucosides and neutral crystallizable bodies from organic bases, and thus facilitate analytical research.

In replacing the mercuric chloride by ferric chloride analogous results are obtained. The solution of pyrogallate of iron used by the author in his experiments contained only a minimum quantity of metallic salt, the addition of a trace of ammonia or caustic alkali to which gives rise to a deep blue-violet color. This very delicate reaction of the salts of peroxide of iron, recently indicated by M. Jacquemin, can also be used to recognize the presence of alkalies. The solution which gave the author the best results was composed of—

Pyrogallic acid, . , . .	0·50 gram.
Water, ...	5 c.c.
Alcohol.	5 c.c.
Perchloride of Iron, . . .	0·0001 gram.

The pyrogallate of iron so prepared, colors blue crystals of strychnia brucia, morphia, codeia, and all the other alkaloids. Crystals of narcotina are colored difficultly, and those of narceia acquire only a scarcely appreciable violet tint, but upon heating them in a water bath they both yield a very deep bluish violet residue The glucosides and neutral bodies give no coloration in the cold, and in the heat no deeper tint than pyrogallate of iron heated separately. A solution of cupric chloride added to pyrogallic acid gives analogous results, the coloration in that case being a nearly black brown.

The author considers that all these reactions are explained by the oxidation of the pyrogallic acid under the influence of various metallic oxides. The addition of an alkali, alkaline salt or free alkaloid to one or other of the foregoing solutions, produces, in the presence of a metallic chloride, a double decomposition; there is formed an alkaline chloride or a hydrochlorate of an alkaloid and a more or less decided coloration, resulting from the oxidation of the pyrogallic acid by the metallic oxide at the moment when the double decomposition takes place.—*Pharm. Journ.* (*Lond.*), *March* 28, 1874.

ACTION OF CHLOROFORM ON POTASSIUM PHENATE.

By J. Guareschi.

When an alcoholic solution of phenol, mixed with caustic potash, is evaporated to dryness, and chloroform is poured upon the residue while still hot, a splendid red-purple color is immediately produced.

The potash should not be in excess, and the temperature not very high. This reaction is capable of detecting 0·1 mgm. of phenol.

The coloration is probably due to the formation of rosolic acid, which is, in fact, known to be produced by the action of iodoform, formic acid, etc., on potassium phenate.

The action of potassium phenate on chloroform does not give rise to any compound analogous to the triethylic formate, or orthoformic ether, which Kay obtained by treating chloroform with sodium ethylate.—*Journ. Chem. Soc., March*, 1874, from *Gazetta chimica italiana*, iii, 401.

MATERIA MEDICA NOTES.*

By E. M. Holmes,

Curator of the Museum of the Pharmaceutical Society.

Koegoed.—At the Brighton meeting of the British Pharmaceutical Conference in August, 1872, a paper was read by Mr. Keyworth, of Hastings, upon a drug called koegoed, the botanical source of which was said to be unknown. Having had occasion lately to turn to Dr. Pappe's Medical Flora of the Cape of Good Hope, I found that the same name, although spelt in a slightly different manner, was applied by the Hottentots to the *Mesembryanthemum tortuosum*, a plant belonging to the nat. ord. Ficoideæ. Not having been able to detect any leaves in a specimen given to me by Mr. J. Moss, I wrote for a further supply to Mr. Keyworth, who courteously complied with my request. In the parcel forwarded to me by that gentleman, I found a few leaves of oblong-ovate shape which exactly corresponded in appearance with those of a specimen of the *Mesembryanthemum tortuosum* in the British Museum. Dr. Shaw, who is well acquainted with the Flora of South Africa, happened to be in the British Museum while I was engaged in comparing the specimens, and immediately recognized the Koegoed as the form in which that plant is used by the Hottentots, remarking that he had seen it growing in Bushmanland, but considered it to be rather a rare plant. There can be no doubt, therefore, that the Koegoed is the produce of *M. tortuosum*, of which it is probably the root and procumbent stem.

Three other species of *Mesembryanthemum* are used medicinally

* Read at the Evening Meeting of the Pharmaceutical Society of Great Britain, Wednesday, April 1st, 1874.

by the Hottentots, but these have leaves of a different shape to those of the Koegoed, the leaves of the *M. edule* and *M. acinaciforme* being scimitar-shaped, and those of *M. crystallinum*, which is well known in this country as the ice plant, being broadly ovate and amplexicaul. The expressed juice of the first two species above mentioned is extensively used in the south of Africa, in dysentery, as a gargle in malignant sore throat, and in the form of a lotion for burns and scalds.

The Koegoed, besides being used as stated by Mr. Keyworth, as a sedative for cattle, is chewed by the Hottentots as an intoxicating agent, and appears to possess narcotic properties which deserve further investigation.

Some Adulterations of Crude Drugs.

Cascarilla.—Notwithstanding the great care which is exercised by most wholesale buyers in selecting good samples at the drug sales, and in the examination of all parcels which enter into stock in their warehouses, spurious drugs are occasionally overlooked and find their way into the retail trade. This spurious cascarilla (of which a sample is upon the table) presents an instance in point. It was imported from the port of Nassau, in the Bahama Islands. A lot of cascarilla, consisting of four serons selected from a fine sample, was purchased by one of the first London houses. Of these serons, three contained the true bark; but the fourth, which appeared to contain unusually fine specimens, and which were sent out as such, was afterwards found to consist almost entirely of the spurious bark.

At first sight this bark strongly resembles cascarilla in appearance, but may be distinguished thus:—The periderm or outer layer of bark does not readily peel off, and is of a fawn color—not white. On the inner surface the bark is of a reddish tint and is furnished with a number of straight, closely-packed, raised lines, which give it a striated appearance, the inner surface of cascarilla being smooth. The taste is not aromatic but astringent, and almost without bitterness. The color of the bark is also of a more reddish tint than that of cascarilla. From the general appearance and microscopical structure of the bark it seems probable that it may belong to a plant of the same genus as the cascarilla.

Most of the species of croton occurring in the Bahamas appear to have aromatic barks, but in the excellent paper published in the *Pharm. Journ.* by Dr. Daniell upon the cascarillas of the Bahama

Islands, one species described under the name of *Croton lucidum*, L., is said to have in the fresh state a slightly bitter and somewhat astringent bark. It further resembles the spurious bark in the "dull red color of the cortical layers." It is said to be used by the negroes of New Providence to mix with the bark of the true cascarilla, under the idea that it improves the curative powers of the latter, and it is known by the name of the false sweetwood bark, sweetwood being the name applied by them to the true cascarilla. Hence this bark may have been mixed with the cascarilla by those who collected it, for the above-mentioned purpose. From the fact of its occurring only in one seron, however, it appears more probable that it was an intentional adulteration. Unfortunately, there are no specimens of the bark of *Croton lucidum* either at Kew or the British Museum, so that I have not been able to ascertain with certainty (as might be done by the use of the microscope) the identity of this bark with that of the *Croton lucidum*, L. I trust, however, in the course of the year to receive further information concerning it from Jamaica.

With regard to its medicinal properties, the bark appears to cause sickness without producing either disagreeable effects.

Mr. A. H. Squire, who first brought this bark under my notice, has examined its behaviour with various reagents, and finds that the infusion and tincture are darker in color than those of cascarilla; that tincture of galls gives a scarcely perceptible cloudiness, and that tincture of perchloride of iron turns the tincture almost black, while the infusion is only slightly deepened in color by it, and that acetate of lead gives an abundant precipitate with both tinctures. The tincture of cascarilla is not altered in appearance either by tincture of perchloride of iron or tincture of galls.

Arnica root.—In a specimen of arnica root which was recently sent to me for examination (by Messrs. Wright, Sellers & Layman), I found only fifty per cent. of the genuine root, and in a second sample only one per cent. of arnica. In both samples there were two or three different kinds of roots, but the chief adulterant in both cases were the same.

The physical characters of this spurious arnica are so strongly marked that it is not difficult to recognize it. For the sake of comparison, before giving the distinctive characters of the spurious drug, it may be well to recall the description of arnica.

What is commonly known as arnica root consists of a slender rhi-

some or prostrate stem having a number of rootlets arranged almost in a line along the under surface. In a transverse section the cortical portion is found to be hard, and of a yellowish white color, while the central portion or meditullium is soft, and of a dirty greyish or brownish-white color. The odor is distinctive, and the taste has a peculiar acridity and an after flavor which may be likened to the odor of rancid cocoa-nut oil.

The spurious drug may be at once recognized by the fact that it is not a rhizome, but a root which evidently descends vertically into the soil, as it is surrounded on all sides by rootlets. In size it varies from that of arnica to five or six times as large, in some pieces appearing præmorse, and in others suddenly narrowed and elongated. The cortical portion resembles that of arnica in color, but the meditullium, or central portion, is of a purple tint, and presents a discoid appearance, two characters which I believe are met with in but few roots. When the root is soaked in water the purplish meditullium swells up and loses its discoid appearance. The taste is astringent and somewhat aromatic, faintly resembling that of cloves. Thinking it possible that the root might belong to some plant having leaves like those of arnica, and that it might have been gathered in mistake for arnica, I examined several species of *Hieracium*, which grow in similar situations, and resemble arnica in having composite flowers and entire leaves, but in none of them had the meditullium a purple color. The astringent taste of the spurious arnica then led me to suspect that it might be the root of a rosaceous plant, and the clove-like flavor seemed to indicate the root of *Geum urbanum*, an indigenous plant well known to herbalists in this country, under the name of Avens, or Herb Bennet. Having procured specimens of the latter from Covent Garden, I found that the appearance, structure and taste were identical, and have therefore no hesitation in referring the spurious arnica root to that plant. The other kinds of root were present only in small quantity, and appear to have been accidental. One is a slender rhizome of a paler color than that of arnica, and has a white discoid meditullium, and a bitter taste; another is evidently that of a species of *Vaccinium;* a third looks very like valerian, but is odorless; a fourth closely resembles bistort root.

From all the spurious roots the leaves have been carefully removed, while an unusual quantity of arnica leaves are mixed with the roots, evidently for the purpose of producing the impression that the root

is genuine arnica. That the adulteration is an intentional one is also evident from the fact that the leaves, flowers and general habit of the two plants are totally distinct; arnica having entire leaves, a simple stem, and composite flowers, while *Geum urbanum* has lyrate pinnate leaves, a branched stem and simple flowers.

Belladonna root.—A sample sent to me for examination contained fifty per cent. of a malvaceous root, which I believe to be that of *Malva sylvestris;* the remainder consisted of small pieces of belladonna root. Externally, the two are very much alike, especially when the belladonna is in small pieces; but internally the appearance and structure will be seen to be very different, belladonna having a very large meditullium and a small cortical portion, while in the mallow the two are nearly equal. The fracture of belladonna also is short, while in the mallow it is distinctly fibrous.

This adulteration, although easily detected, is of considerable importance, seeing that it would in this proportion reduce the strength of the preparations of belladonna by one-half. Both the arnica and belladonna were imported from Germany.

Whether these adulterations are to be taken as an indication that arnica and belladonna are becoming scarce in Germany, or whether they are the result of a demand for cheap drugs, is not very evident, but their occurrence does point to the necessity for a very careful examination by the pharmacist of all crude drugs which enter into stock, and to the importance attaching to a thorough acquaintance with the appearance and structure of all articles of materia medica. They show also that adulterations may occasionally occur where they would be least suspected.—*Phar. Jour. and Trans., April* 11, 1871.

ANALYSIS OF IODINE.

By Gaston Tissandier.

Translated from the Moniteur des Produites Chimiques, by S. A. Goldschmidt, E. M.

The method of analysis producing the best results is to dissolve the iodine in sulphurous acid, and precipitate it as iodide of silver in the presence of an excess of ammonia to dissolve any chloride which may be present. The principle of the process is simple, yet certain precautions are necessary in order to insure the success of the analysis.

1. *Weighing the Iodine.*—As iodine volatilizes with great readiness,

it is impossible to weigh it upon an open watch-glass as in ordinary analyses. Place a few grammes of iodine in a well-corked specimen tube, and weigh. Throw a few decigrammes into the sulphurous acid solution and rapidly close the tube. The difference in the weight of the tube gives the amount of iodine taken for analysis.

2. *Determination of the Iodine.*—Place in a beaker or flask of about one litre capacity 40 c. c. of concentrated and freshly prepared solution of sulphurous acid. In this the iodine is dissolved by stirring. If an appreciable residue remains, this is filtered off and weighed, care being taken to keep the funnel covered during the operation. This, however, is seldom necessary, commercial iodine containing generally but small traces of insoluble substances.

Pour now into the beaker at least half a litre of boiling water, and an excess of ammonia; and then add nitrate of silver, cover the beaker, and allow the precipitate to stand about half an hour in a warm place. At the end of that time filter through Swedish paper without folds, wash by decantation with boiling water, taking care to gather the precipitate at the apex of the funnel. When thoroughly washed, giving no turbidity with hydrochloric acid, the precipitate is dried in an air bath at 110° C.

Care must be taken prior to igniting the argentic iodide to remove all trace of carbon, lest the precipitate should be reduced to metallic silver. Remove the iodide from the filter by means of a platinum spatula, to a piece of glazed paper, scraping the paper to remove the smallest fragments; in spite of these precautions a little will adhere to the apex of the filter; cut this off and calcine it in a weighed porcelain capsule of about 12 mm. diameter. When the ash is perfectly white, add the iodide, and heat till it begins to fuse; cool and weigh. The equivalent of iodide of silver is 235, and of silver 108, so that the precipitate contains 54 per cent. of iodine.

3. *Determination of the Chlorine.*—To the filtrate from the last determination add an excess of nitric acid, filter and weigh the resulting chloride with the usual precautions.

4. *Determination of the Ash.*—Weigh five grammes in the method already described, and ignite gently in a porcelain capsule till all the iodine has volatilized; the residue should be very slight, and consists chiefly of silica and alumina, with trace of alkaline chlorides.

5. *Determination of the Moisture.*—The quantity of moisture in

commercial iodine is often considerable, frequently as much as 20 per cent. This must be determined by difference, as all direct determinations being attended by heat would cause large quantities of iodine to volatilize.

We have, however, in cases where the sample is very moist, employed the following method: Place a gramme of iodine in a narrow tube graduated into tenths of centimetres, add 20 c. c. of bisulphide of carbon, and shake the tube. Closing the orifice with the finger, till the iodine is entirely dissolved, cork the tube, and allow it to stand in a warm place for three hours; at the end of the time the water in the iodine will have separated from the solution, and the number of centimetres occupied by the water will give the percentage contained in the iodine. This method is not exact, but will act as a check upon the remainder of the analysis.

Below are a number of analyses of commercial iodine, Nos. 3, 4, and 5 being good samples; Nos. 1 and 2 containing more water than is usually found.

	1	2	3	4	5
Iodine, . . .	76·21	79·50	84·25	88·61	94·12
Chlorine, . .	0·88	0·71	0·92	0·52	0·30
Ash, ...	1·11	1·02	0·80	0·72	0.40
Moisture, . .	21·80	18·77	14·03	10·15	5·18
	100·00	100·00	100·00	100·00	100·00

—*Amer. Chemist, May*, 1874.

Varieties.

The Production of Vanilla.—In the island of Reunion (or Bourbon) there were in 1870 nearly 700 acres under culture with vanilla, which produced 37,024 lbs. The French Colonial Commission has been seeking to extend the culture of this valuable orchid. It appears that the large sales of vanilla which were made in the French Colonial Section of the Paris Exhibition, in 1867, have extended the taste for this aromatic flavoring, and caused the price of the finest qualities of Reunion Vanilla to advance from 16 francs to 100 francs per lb. In view of the insufficiency of the production to meet the increased demand, instructions have been sent out to these colonies as to the processes of artificially fecundating and preparing the pods, and it is expected that the culture will be largely extended. It was from Reunion that this orchidaceous plant was transported to Mauritius, by M. Richard, of the Botanic Garden of Reunion.

The plantations for vanilla are extending in Mauritius, and occupy the attention of many small proprietors. This product bids fair to extend considerably,

in view of the high prices obtained for it in the markets of Europe. The value of the shipments in the last few years has been as follows: 1867, £1488; 1868, £965; 1869, £2004; 1870, £2860; 1871, 4920 pounds, valued at £3345 in the colony.—*Journ. of Applied Science* (*Lond.*), *May* 1, 1874.

History of the Paris School of Pharmacy.—A short time since the fact was mentioned that a discussion had taken place in the French legislature respecting the dilapidated and unsafe state of the Paris School of Pharmacy. As it appears probable that, after being used for about three hundred years for purposes more or less connected with instruction in the art of preparing medicines, this building will be shortly abandoned by the School in favor of a more commodious one, the opportunity has been taken to publish a short sketch of its history, past and present, in the pages of "L'Union Pharmaceutique," from which the following is taken:

The origin of this establishment is very ancient. Upon the site occupied by it at the present day there formerly stood an hospital, probably founded in the thirteenth century by Marguerite de Provence, widow of Louis IX, which, in the following century, belonged to Guillaume de Chanac, bishop of Paris and patriarch of Alexandria. In 1559 the building was in the occupation of a Pierre Galand, when by a parliamentary decree it was allotted to the lodging and treatment of paupers suffering from venereal maladies. So reconstituted, the establishment took the name of the Hôpital de Lourcine.

Afterwards, Nicolas Houel, a grocer, born in Paris in 1520, conceived the idea of establishing a charitable institution where orphans might be instructed in the apothecaries' art, whose mission it should be to administer medicines to the respectable poor. An edict of Henry III, dated 9th October, 1576, approved of this foundation, and of the formation of a garden of simples. Nicolas Houel applied for a portion of the building called the Hôtel de Tournelles, then abandoned, in order to put his project into execution. A commission appointed to consider his application accorded to him the Maison des Enfants-Rouges, in the Marais, and the new institution was installed and remained there until 1578. In that year, in consequence of difficulties met with by the founder, he asked to be allowed to transfer his establishment to the house in the rue de Lourcine, the buildings of which were in a very bad state. A decree of the parliament, dated 2d of January, 1579, authorized the transfer, which was carried out in the following April. The establishment bore the name of "Maison de la Charité Chrétienne."

Some waste ground belonging to the house, the greater part of which belongs to the School of Pharmacy at the present day, was planted with trees, and on another portion of it Nicolas Houel raised a house at his own expense, which was on one occasion ruined by an inundation of the Bièvre. The inclosure was continued to the rue de l'Arbalète, and eventually Houel formed there, on the model of the garden at Padua, a botanic garden, which was the first that had existed in France. Nicolas Houel died in 1587. Nine years afterwards Henry IV changed the destination of the establishment, which he appropriated to soldiers of all grades wounded in his service, and it thus became the first germ of the Hôtel des Invalides.

These invalids were in turn transferred by an order of Louis XIII to the Bicêtre, and the house of Christian charity thus vacated was occupied by various communities of women, the property being handed over to the Order of Saint Lazarus. From them it soon passed into the hands of the Bishop of Paris, who granted it to the Hôtel Dieu. Finally, by two decrees of parliament, issued in 1624 and 1625, the lands were granted to the Corporation of Apothecaries, who were charged to carry out the foundation of Nicolas Houel. Shortly afterwards this corporation augmented the original land by the purchase

of two large gardens in the rue de l'Arbalète. In 1629 it also built there a large house, which now forms the principal portion of the building of the School of Pharmacy.

This establishment at first went by the name of the "Jardin des Apothicaires." This, by order of the King in 1777, was changed to "Collège de Pharmacie," and to "École Gratuité de Pharmacie," by a decree of the Executive Directory, dated 3 floréal an iv (22d April, 1797). Finally the law of the 21 germinal an xi (10th April, 1804), having established in France three schools, that of Paris, which was only a continuation of the previous school, entered into possession of the ground and buildings situated in the rue de l'Arbalète. This possession was confirmed by a decree of the Government a few months later.

At that time the School of Pharmacy managed its own affairs, under the authority of the Minister of the Interior. This arrangement was continued until September, 1841, when, by a royal ordonnance, the schools of pharmacy were placed under the same *régime* as the universities. In its earlier days the real estate of the school remained the same as when it was received from the apothecaries. It received its first augmentation in 1821 by the acquisition, for the sum of 9000 francs, of an enclosed garden. In 1844, a neighboring house, of which, however, possession was not obtained until 1853, was purchased for 20,000 francs. In 1857, part of the original land, abutting upon the rue de Lourcine, was exchanged for some land situated in the rue de l'Arbalète more convenient to the school. Such are some of the principal events in the history of the École Supérieure de Pharmacie, from its foundation in 1578 until the present time.

The buildings of the School of Pharmacy are now unfortunately falling into ruins, and it has become necessary to shore them up on all sides. They have, moreover, become insufficient, and it is under consideration to transfer the school to new premises, which might be built upon ground situated between the Observatory and the Luxembourg. An iron gate, opening upon the rue de l'Arbalète, gives access to a rather small court-yard, where may be seen, on each side of the steps facing the entry, the statues in bronze of Vauquelin and Parmentier. The school contains two amphitheatres, of which the larger would not seat more than 280. But there are 500 students. The same insufficiency occurs in the laboratories, which are six in number. Of these, one will accommodate 50 students; the other five, more recently constructed, would not accommodate more than 20 each. So that only 150 students can be employed at the same time in manipulation, and this occasions a great loss of time.

The "salle des actes," where the examinations are passed, is well arranged and contains a collection of portraits of all the professors who have successively taught in the school. Some of these portraits are remarkable works of art.

The chemical, physical, zoological, and natural history collections, as well as the library, are complete in relation to the teaching imparted in the school. Beyond this, they contain nothing particularly remarkable. They are open every day from 11 A.M. until 4 P.M.

The botanic garden also requires some augmentation. It is intended shortly to establish, upon government land close by, two temporary laboratories, built of wood, of which one is to be devoted specially to botany.

There are nine "chairs" connected with the school: (1) botany, (2) organic chemistry, (3) inorganic chemistry, (4) materia medica, (5) pharmaceutics

chemistry, (6) Galenic pharmacy, (7) physics, (8) zoology, and (9) natural history of medicaments.

The staff consists of nine professors, eight assistant professors, a responsible secretary, a superintendent of practical chemistry and pharmacy, four lecture demonstrators, three demonstrators of the practical course, a librarian and other officials, numbering in all thirty-five persons. The functions of director of the school are exercised by one of the professors.

During the four "trimestres" of the scholastic year 1872–73, there were 1382 entries. During the same time the number of examinations were 1664. The cost of the terms and examinations for the diploma of pharmacien of the first class is 1390 francs; that for the terms and examinations for the diploma of pharmacien of the second class, 660 francs.

In 1872 the receipts of the École Supérieure de Pharmacie of Paris amounted to 238,790 francs. The expenditure during the same time, including the cost of the staff, was only 174,875 francs 76 centimes, leaving a balance of 63,914 francs 24 centimes.

Amongst the remarkable persons who have passed through this school may be mentioned Parmentier, Vauquelin, Robiquet, Pelouze, Pelletier, and Caventou, the latter two of whom first prepared the sulphate of quinia. At the present day the staff of the school is constituted as follows:

Director.—M. Chatin.

Honorary Director.—M. Bussy.

Administrators.—MM. Chatin, Berthelot, and Planchon.

Honorary Professor.—M. Caventou.

Professors.—Botany, M. Chatin; Organic Chemistry, M. Berthelot; Zoology, M. Milne-Edwards; Physics, M. Buignet; Galenic Pharmacy, M. Chevallier; Natural History of Medicaments, M. Planchon; Toxicology, M. Bouis; Pharmaceutical Chemistry, M. Baudrimont. The chair of Inorganic Chemistry is at present vacant.

Delegates from the Faculty of Medicine.—MM. Bouchardat and Gavarret.

Assistant Professors.—MM. Soubeiran, Riche, Bourgoin, Jungfleisch, Le Roux, Marchand, Gustave Bouchardat, and Joannès Chatin.

Secretary.—M. Chapelle.

—*Pharm. Journ.* (*Lond.*), *May* 2, 1874.

Eupatorium in Tapeworm.—Dr. H. S. Wilkins, in Med. and Surg. Reporter for April 4th, reports a case in which a tapeworm was partially expelled from a woman after she had used an infusion of boneset for two weeks. Pumpkin seed, afterwards administered, had no effect; the boneset infusion was renewed and in a few days she voided over sixteen feet of the tænia.

Mutual Behavior of Oxygen and Water.—Em. Schœne.—The author concludes, from a series of carefully conducted experiments, that—(1) Ozone is partially destroyed by passing through water. If dry, ozonized oxygen is simply collected over water, the ozone present is diminished by about one-fourth.

If passed through water for a longer time, the loss of ozone is greater. The loss of ozone is the more considerable the longer the gas is in contact with the water, and the greater the surface exposed. (2) Ozone is absorbed by water in a considerable degree, even at the ordinary temperature of the atmosphere. (3) On passing dry ozonized oxygen through water much more ozone disappears than is absorbed by the water. The decrease of the proportion of ozone is, therefore, only very slightly determined by absorption, but must be considered as a consequence of the destructive action of water. (4) Ozone does not convert water into peroxide of hydrogen. As regards the loss of ozone in ozonized oxygen gas, on standing for a longer or shorter time in contact with water, the author concludes—(1) if oxonized oxygen is left in contact with water, the ozone is gradually converted into ordinary oxygen. In three days the original proportion of ozone is reduced to one-half, and in fifteen days mere traces of ozone remain. (2) The transformation of ozone into oxygen, in contact with water and at common temperatures, is attended with an increase of bulk.—*Chem. News*, from *Ann. d. Chem. u. Pharm.*, 1874, *Jan.*

Formation of Gum in Fruit-Bearing Trees.—E. Prillieux.—In the wood of a tree diseased with gum, a great number of vessels are always seen more or less completely filled with gum; sometimes they are entirely filled to a certain length, and sometimes the gum only forms a coating either upon all the periphery or only on one side. The gum first shows itself in very small drops, which gradually increase in size and touch each other, forming small irregular masses. Recent German observers have stated that the formation of the gum is due to the disorganization and transformation of the internal part of the wall of the vessel, but the author has come to an opposite conclusion. In examining the wood of an apricot tree from which large masses of gum were extracted, it was found that the vessels were marked with areolated punctures, and with a spiral line due to a thickening of the membrane; also that the surfaces of the masses of gum were marked with deep furrows corresponding with the spiral lines of the vessel-wall, and even with small projections according with the punctures. It is thus certain, in the author's opinion, that the gum has poured into the interior of the vessel, and that the marks upon it are imprinted from the vessel-wall.

In the production of gum in the cellules by the transformation of starch, it has been observed that, on the first appearance of gum in the cellule, the unchanged starch gathers into small masses, around which forms a thin coating of gum. Gradually the starch diminishes, while the coating of gum increases, until at last the starch disappears altogether, leaving generally a vacant space in the centre of the mass of gum.

Often the gum produced in such considerable quantity is formed neither in the vessels nor in the cellules, but in the spaces between the young tissues, generally between the wood and the bark, yet often also at different depths in the wood. These gum-spaces grow at the expense of the neighboring tissues, which suffer important modifications: the cambium, instead of producing woody fibre, forms cellules in which abundance of starch are deposited, which starch subsequently becomes converted into gum.—*Jour. Chem. Soc.* (*Lond.*), *April*, 1874, from *Compt. Rend.*, lxxviii, 135.

Anæsthetic Properties of Saponin.—From the researches of Dr. Kohler, quoted in the London "Medical Record," saponin is possessed of marked powers as a local anæsthetic, so that it is possible that it may be yet of service in surgical operations. A solution of saponin, applied externally, produces partial paralysis of the motor and sensory nerve filaments; administered hypodermically, these effects are realized to a greater extent. Saponin exists in many plants, as in the Sileneæ—*Saponaria officinalis;* Polygalaceæ—*Polygala senega;* and Sapotaceæ—Cortex monesiæ, a product of the *Chrysophyllum glycyphlœum.*—*Canadian Pharm. Journ., May* 1874.

Crystallized Glycerin.—In a paper read at a recent meeting of the Liverpool Chemists' Association, Mr. A. H. Mason described the properties and characteristics of crystallized glycerin, as exhibited by a specimen obtained from the patentee. The glycerin was first shown at the Vienna Exhibition, and it was then understood that this crystalline condition could only be insured by absolute chemical purity. From actual examination of a specimen, Mr. Mason thinks that this condition is not necessary to bring the specimen to the crystalline form in which it exists. Being very hygroscopic, atmospheric influence of mean temperature is quite sufficient to liquefy it, and, once liquid, exposure to intense cold will not cause it to congeal. The peculiar mousey odor is present. Contact with calcic oxalate produces slight turbidity, and heated with sulphuric acid and absolute alcohol there is discoloration. The method of production, being patented, is a secret; it commands a fancy price. Its usefulness is questionable; as a chemical curiosity it is interesting.—*Ibid.*

Chloral and its Combination with Albuminoïd Matters.—J. Personne.—Although albumin combines with chloral, the author has not been able to determine the conditions necessary to obtain a definite compound; yet he says that such a compound is soluble in excess either of albumin or of chloral. On one occasion a compound was obtained, which, when dried for eight hours, at 40—45°, then pulverized and dried at 100°, gave on analysis, 12·56 per cent. of chlorine, equivalent to 17·23 per cent. of chloral.

If the action of chloral be due to the chloroform which it produces in the human system, then the greater duration of the effects of chloral over those of chloroform may be thus explained. The first action of chloral hydrate upon the albuminoïd matters which it meets with in the human system, produces chloroform by means of the alkali of these albuminoïd matters. At the same time these matters, deprived of alkali, form a combination with the undestroyed chloral, and this combination forms a kind of reservoir of chloroform, which only cedes it gradually in proportion as the circulation destroys the combination formed. This explains why only a very small quantity of chloroform is met with in the blood of animals submitted to the action of chloral. It also justifies the employment of chloral in the dressing of wounds as a powerful modifier of the tissues.

Chloral may be advantageously used for the preservation of the most readily

alterable mineral matters. An admixture of glycerin may be used where such matters are required to be preserved in a soft state.—*Jour. Chem. Soc.* (*Lond.*), *April*, 1874, from *Compt. Rend.*, lxxviii, 129.

Santonic Acid.—H. Hvoslef.—Hvoslef prepared santonic acid by the same process as Cannizaro and Sestini (Jour. Ch. Soc. xi, 1229), as long ago as 1863. He gives the same formula and basicity for the acid, but states its melting point to be 171°.

The following measurements of the crystals were made by Waage:

$$\infty P : \infty P = 113° 18'$$
$$P\infty : P\infty = 130° 43'$$
$$P\infty : \infty P\infty = 140° 35'$$
$$\infty P : \infty P\infty = 123° 25'$$
$$a : b : c = 0{\cdot}4588 : 1 : 0{\cdot}6584$$

The santonates of heavy metals are for the most part soluble only in boiling alcohol, and the solutions yield, when cooled, gelatinous masses which gradually crystallize.

The further action of baryta on the solution from which the santonic acid has been precipitated by hydrochloric acid, yields two bodies, one of which is apparently a sugar. Santonic acid would therefore seem to be a glucoside.—*Ibid.*, from *Deut. Chem. Ges. Ber.*, vi, 1471.

Helenin and Inula-Camphor.—J. Kallen.—Gerhardt found in the root of *Inula Helenium* a crystalline body, which he called helenin. This substance, although having a uniform appearance, and melting constantly at 72°, is a mixture of at least two compounds, which have the same crystalline form, and cannot therefore be easily separated. One of them, for which the name *helenin* is retained, may be obtained pure by repeated recrystallization from absolute alcohol. It forms long needles melting at 109°—110°, and having the empirical formula $C_6 H_8 O$. It has an insipid taste, and is almost insoluble in water. Its rational formula could not be ascertained, as bromine converts it into a resin, and nitric acid converts it into oxalic acid and a resinous nitro-compound.

The second body, which is more soluble in alcohol, is *inula-camphor;* it cannot be completely freed from helenin by crystallization, while by distilling the root with water, the camphor is volatilized but only slowly. It forms small prismatic needles, having a hot aromatic taste and the odor of peppermint. It melts at 64°, and dissolves sparingly in water and freely in alcohol and ether. It appears to be an isomeride of common camphor: for on distilling it with phosphorus pentasulphide, a hydrocarbon is obtained having the composition of cymene, and not that of Gerhardt's helenene, $C_{15}H_{16}$.—*Ibid.*, from *ibid.*, vi, 1506—1509.

Minutes of the Pharmaceutical Meeting.

The last meeting of the season was held in the Hall of the College, May 9, 1874.

The meeting was called to order by A. P. Brown, who was appointed President *pro tem.*

Prof. Maisch presented a copy of the Proceedings of the American Academy of Arts and Sciences, which was received with thanks. Also a sample of insect powder *flowers*, Pyrethrum roseum, from Betanelly & Co. A discussion took place, during which it was stated that the powder made from the above flowers possessed a more decided and somewhat different odor from that generally seen in the market; and it was stated that, in powdering, large quantities of insect powder flowers were fraudulently mixed with old chamomile flowers, matricaria, etc.

Jos. P. Remington presented, on behalf of Mr. Blackman of Newport, R. I., through T. H. Hazard, a thirty grain suppository mould, constructed on the principle described in the minutes of last meeting, The thanks of the College were directed to be forwarded for the gift.

Prof. Maisch exhibited a sample of the leaves of Liatris odoratissima, which were obtained, through T. H. Hazard, from Florida. They are used for perfuming tobacco, preserving cloths, etc., and contain coumarin as per analysis of Prof. Procter.*

A. P. Brown called the attention of the meeting to the miserable quality of the oil of sandal wood as generally furnished by the wholesale druggists. He showed a specimen of pure oil which possessed the usual persistent odor, whilst the other was of a thicker consistence, weaker in odor and had the smell of oil of copaiba in addition.

A communication from Mr. Wilder was read by the registrar, as follows:

Cudbear *versus* Cochineal.

I have often wondered why cudbear (*Lecanora tartarea*) never has been proposed as a coloring agent for elixirs, etc., instead of *cochineal*. It has at least that one good property of not reacting with iron salts, whether proto or sesqui. Its only fault is that, when largely diluted with water, (the alcoholic solution) it acquires a bluish (violet) tinge, very perceptible by shaking. This can, however, be remedied by the cautious addition of a drop or two of any diluted acid. I say cautious because, with acids, its rich carmine color turns brick-red (which color in itself is beautiful enough).

Thinking that the cudbear might react with some salts, so as to give a muddy or otherwise unsightly color, I examined its behaviour to the following tests:

Ammonia.—Violet shade (gives a splendid show-color.)

Acids.—Brick-red (according to proportion and strength; diluted acids act either as simple diluents or brighten the color.)

Ammon. chlorid.
Potass. nitr.
Potass. bicarbon.
Sodii bicarbon.
Magnes. sulph.
} A bluish (violet) shade.

* See American Journal of Pharmacy, 1859, p. 556, and 1866, p. 443.

Alumen.—Brightensrather.
Tinct. ferri chlorid.—A coarse brick-red.
Ferri proto-sulph.—Nothing particular.
Zinci sulph.—Violet shade.
Potass. iodid.—Nothing particular.
Donovan's solution.—Brick-red.
Dilute tinct. iodine. } Brick red.
Bromine water. }
Plumb. acet.—Dirty violet.
Potass. bromid.—Nothing particular.
Water.—A violet shade.

To repeat, it ought to be preferred because of its cheapness, and because it does not react with iron salts.

After a discussion by the members, on the advantage of using yellow wax in ointments, the meeting adjourned.

JOSEPH P. REMINGTON, *Registrar.*

Pharmaceutical Colleges and Associations.

THE NATIONAL COLLEGE OF PHARMACY, Washington, D. C., held its annual meeting April 6th. The President, W. S. Thompson, delivered an able address, after which the following officers were elected for the ensuing year: President, R. B. Ferguson; 1st Vice-Presidents, F. S. Gaither, Phar. D., W. B. Entwistle; Treasurer, S. W. Cromwell; Corresponding Secretary, D. P. Hickling, Phar. D.; Recording Secretary, J. C. Fill; Librarian and Curator, George Wooldrige.

The honorary degree of Doctor in Pharmacy was conferred on Professors O. Oldberg and R. H. Stabler.

The class during the past winter numbered thirty, and the graduating class consisted of T. P. Cole, F. S. Gaither and C. L. R. Sayre.

THE MISSISSIPPI STATE PHARMACEUTICAL ASSOCIATION held its annual meeting in the city of Columbus, April 8th, President Hampden Osborne in the chair. In his annual address the President reviewed the progress of the Association, urged the necessity of systematic education, referred to the loose system of apprenticeship in the southern portion of our republic, expressed a hope in the final success of the bill for regulating the practice of pharmacy, and discussed various other subjects of interest.

The following officers were elected for the ensuing year: President, Jno. T. Buck, Jackson; Vice-President, F. H. Duquercron, Starkville; Corresponding Secretary, Hampden Osborne, Columbus; Treasurer, M. F. Ash, Jackson; Recording Secretary, P. H. Keefe, Vicksburg; Committee on Pharmaceutical Legislation—M. F. Ash, Chairman, J. F. Butler, Jno. T. Buck.

The next meeting will be held in Meridian, on the second Wednesday of April, 1875.

Michigan Pharmaceutical Association.—Pursuant to a call of Saginaw Valley Pharmaceutical Association a convention of the druggists of Michigan was held at the Biddle House, Detroit, May 20. The call stated the object of the convention to be to form a State association, with the view, among other objects, of securing the enactment of laws regulating the drug business in the State. About fifty pharmacists and druggists from various parts of the State were present. The meeting was organized by calling Dr. S. S. Garrigues, of East Saginaw, to the chair; James Vernor, of Detroit, was chosen Secretary.

A Committee on Organization, consisting of John Harvey, Chas. C. Curtis and B. E. Sickler, reported in favor of adopting the Constitution of the Maine Pharmaceutical Association for temporary purposes, and that an organization should be effected under it The report was adopted, and the Committee continued, with the addition of Prof. Douglas, to prepare a constitution and by-laws.

The pharmaceutical law before the Legislature of Michigan was discussed at some length, and the following committee appointed to prepare a perfected pharmacy bill: Dr. Garrigues, Jas. Vernor, Theo. Ronnefeld, S. H. Wagner, O. Eberbach.

The following officers were elected: President, S. S. Garrigues, East Saginaw; Vice-President, S. M. Sackett, Monroe; Corresponding Secretary, S. H. Wagner, Muskegon; Recording Secretary, James Vernor, Detroit; Treasurer, J. C. Mueller, Detroit; Auditor, Ottmar Eberbach, Ann Arbor.

The following appointments were then made:

Delegates to the next meeting of the American Pharmaceutical Association —E. C. Saunders, of Detroit; A. B. Lyon, of Detroit; F. Van Walshausen, of Bay City; S. H. Wagner, of Muskegon; C. C. Curtis, of Hillsdale.

Committee to prepare a list of antidotes to be printed on poison labels—Profs. Prescott and Douglass and Mr. Eberbach, of Ann Arbor.

Committee to prepare queries for discussion—O. Eberbach, P. Plessner and J. Vernor.

The next meeting will be held in Detroit on the third Wednesday of October next.

Pharmaceutical Society of Paris.—At the meeting held March 4th, a letter from M. Phallide, of Bucharest, was read, recommending the rapid preparation of oil emulsions by using definite proportions of gum and water. MM. Buignet and Bourgoin stated that similar results had been published by Overbeck in 1851.* The remainder of the session was occupied with discussions on the antiseptic properties of chloral, on the behaviour of phosphorus and of phosphates during putrefaction, and of the causes which give to the urine an alkaline reaction.

At the session held April 1st, M. Petit read a memoir on unfermentable substances and on diastase, which lead to some remarks on fermentation. Professor Planchon exhibited the root of *Rheum rhaponticum*, which had been cultivated in the garden of the Paris School of Pharmacie; he showed its simi-

*See American Journal of Pharmacy, 1851, p. 377; also 1868, p. 205.

larity to English and other European rhubarbs, and demonstrated its difference from *Rheum officinale.*

The Fourth International Pharmaceutical Congress will be held at St. Petersburg, Russia, from August 1st (13th) to 6th (18th). Arrangements have been made with the Hotel Demouth for a considerable reduction of the usual charges. The reception committee, wearing white rosettes, will meet the foreign delegates at the depots on July 31 (August 12). The following programme for this Congress has been published:

Thursday, August 1 (13), 10 A. M. First session: election of officers, appointment of committees; in the afternoon, committee meetings; in the evening, reunion.

Friday, August 2d (14), forenoon, scientific discussion; afternoon, excursion by steamer and visit to the botanical garden, etc.; evening, reunion.

Saturday, August 3d (15), 10 A. M, second session; 5 P. M., dinner.

Sunday, August 4 (16) forenoon, visit to Isaac church, hermitage, etc.; afternoon, excursion to Peterhoff.

Monday, August 5 (17), forenoon, scientific discussions and committee meetings; afternoon, excursion to Zarskoje-Sselo and Pawlowsk.

Tuesday, August 6 (18), third session and adjournment of the Congress.

The questions to be acted on at this Congress have been published on page 205 of the April number.

Editorial Department.

Pharmaceutical Legislation.—In reply to Mr. Fredigke's essay, published in our May number, we have received several communications approving of the laws regulating the practice of pharmacy as enacted in several States, and suggesting that they should be made more stringent, if found to be inoperative from any cause. The arguments given in Mr. Fredigke's paper, printed in this number, contain several nice points; we leave our readers to judge of their weight, while referring them to the editorial remarks on page 249 of our last number.

In relation to the questions which are being discussed in Continental Europe, we have received a paper from Dr. Fred. Hoffmann, which will appear in our next number; it gives a condensed account of this agitation, involving the future status of pharmacy in Germany and other European countries. The ultimate results of this movement cannot, of course, be told in advance, but the necessity exists everywhere of securing to the sick such remedies as may be needed, but of the quality of which they cannot be expected to judge, and to have these medicines prepared by competent persons. On the other hand, the restrictions upon trade are being more and more removed in all countries; and from these two factors, it seems to us, the ultimate results must be closely analogous, without regard to the premises upon which the movement was inaugurated in the different countries.

Sugar of Lead Sold for Sugar of Milk.—A correspondent writes that he received from a wholesale drug house, in this city, a package marked "sugar of milk," which, on examination, proved to be acetate of lead. In some places milk sugar is used as an addition to milk and other food for babies, and the result of such a mistake must necessarily be serious, unless discovered and rectified in due time. In the course of his remarks our correspondent writes:

"And now the moral. What does this occurrence teach? Not alone a want of proper care on the part of the assistant who made the blunder, but a lack of proper surveillance on the part of his employer and preceptor. I have been in both branches of the business, and in several firms, and I know that in the matter of care and supervision some of our wholesale dealers fall lamentably short of their duty."

To which we add that this case is another illustration of the necessity of examining every drug and preparation before it is dispensed, no matter how reliable the house from which it has been purchased. The pharmacist who neglects this duty is not excusable if injury is done. As human beings, we are liable to err; to reduce this possibility of making mistakes to an almost absolute impossibility, constant watchfulness is necessary not only in the wholesale drug store, but likewise in the dispensing store, from the time a drug is received until it leaves the establishment in some form or other. This is a solemn duty, which we are bound to perform; for when the remedial agent leaves the pharmaceutical establishment, it has reached the hands of those who are presumably ignorant of its physical and chemical qualities, and are therefore compelled to put their trust into the attainments of him, who by following the business of a druggist or apothecary, assumes its responsibilities, and holds out to the public the assertion of his competency.

We entirely approve of the suggestion of our correspondent, that antiquated terms like white vitriol, green vitriol, blue stone, etc., should be discarded; they are, we believe, very little used by druggists, except in their intercourse with the public.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Third Annual Report of the Alumni Association of the College of Pharmacy of the City of New York, 1874. 8vo., pp. 52.

This pamphlet contains the commencement exercises, noticed on page 247 of our last number, together with the addresses delivered on this occasion, the minutes of the annual meeting, of the executive board, and of the conversational meetings, papers read at the latter, the constitution and by-laws, roll of members, etc. In a paper by Geo. W. C. Phillips, entitled "Latent Pepsin," the author arrives at the conclusion that, while a carefully made wine of pepsin, not containing over ten per cent. of alcohol, may and does contain pepsin, it exists in a latent state, and that when diluted with the juices of the stomach, at the normal temperature of that organ, it regains its activity and will perform its digestive functions.

Mr. John Vanderbeugle, in a paper read at one of the meetings, directs attention to Fowler's solution containing an excess of carbonate of potassium, on account of which precipitates occur when it is mixed with solutions of salts of morphia and other alkaloids; the addition of a little acid is therefore necessary.

A few formulas which were in use about forty years ago, have been contributed by G. C. Close.

The officers of the Association for the present year are G. W. C. Phillips, *President;* B. F. McIntyre, Phil. A. White, Wm. Wright, Jr., *Vice-presidents;* Theob. Frohwein, *Treasurer;* and P. W. Bedford, *Secretary.* The following delegates to the American Pharmaceutical Association have been appointed: P. A. White, S. A. Ambler, J. L. A. Creuse, B. F. McIntyre, L. M. Royce.

Treatment of Nervous and Rheumatic Affections by Static Electricity. By Dr. A Arthius. Translated from the French by J. M. Etheridge, M.D. Chicago: W. B. Keen, Cooke & Co., 1874. 12mo. pp. 144.

This little work has been written for the purpose of proving the medicinal effects of static electricity, and its superiority over dynamic electricity. The physician will find it to contain many valuable facts and suggestions in the application of a remedial agent, which the author believes to be destined to render most important service to the medical art.

On the Polarization of Zodiacal Light. By Arthur W. Wright. 8 pages.

A reprint from the May number of the American Journal of Science and Arts.

OBITUARY.

Charles Ellis died suddenly at his residence in this city, aged 74 years. The deceased was one of the original members of the Philadelphia College of Pharmacy, which institution he served in various capacities for a number of years as secretary and as president, which latter office he resigned in 1869. He had also presided for one year over the American Pharmaceutical Association.

During his long and useful life, and while actively engaged in business, Mr. Ellis contributed about fourteen papers and a number of translations to the earlier volumes of this Journal, mainly on pharmaceutical and chemical subjects; he had been a member of its Publishing Committee for 42 consecutive years until 1872, and had acted the greater part of this time as its treasurer.

For a full biographical sketch of the deceased we refer our readers to the report on deceased members of the Philadelphia College of Pharmacy, which will be published in a future number.